DOCUMENT RESUME

ED 237 289 RC 014 462

AUTHOR Mounts, Deborah S.; Street, Steven C.
TITLE Whole Brain Learning Summer School Project. Migrant Child Education-Region II.
PUB DATE 83
NOTE 46p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Affective Objectives; Behavioral Objectives; *Behavior Change; Change Strategies; *Classroom Techniques; Cognitive Style; Creative Activities; Educational Strategies; Elementary Secondary Education; Evaluation Methods; Inservice Teacher Education; Migrant Children; *Migrant Education; Pretests Posttests; Program Descriptions; *Student Attitudes; *Summer Programs; Teacher Attitudes; *Teacher Improvement
IDENTIFIERS Brain Hemispheres; Sacramento City Unified School District CA; *Whole Brain Learning

ABSTRACT

The primary purpose of a Sacramento, California, summer school project for 200 migrant children (K-8) was to determine whether significant change in teacher and student behaviors would result from combining right brain and left brain learning activities for 34 school days. Objectives were to increase affective and social skills and academic growth in cognitive areas, utilize integrated teaching processes to enhance elementary/secondary academic and social skills goals, and encourage parent participation. Materials included a project manual, tests of left and right hemisphere ability, and four sets of lessons and materials (reading, math, brain hemisphere activities, social studies/science) used by eight teachers. Before summer school, teachers participated in inservice activities on matching teaching to learning styles, planning learning activities to involve a high degree of brain hemisphere integration, and coordinating natural language acquisition principles with integrated lesson plans. Weekly staff meetings encouraged sharing of teacher experiences; informal classroom observations collected assessment data. All K-8 students were pre/post tested with the Test of Right Hemisphere Ability; of 63 randomly-selected students followed throughout the program, 44 showed improved scores on the posttest. Student attitude improvement and affective development were also achieved. Teachers experienced growth as measured by self-evaluations and classroom observations. Student and staff anecdotal remarks are included. (MH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED237289

4 NOV 1983 RECEIVED ERIC/CRESS

MIGRANT CHILD EDUCATION - REGION II

WHOLE BRAIN LEARNING

SUMMER SCHOOL PROJECT

SUMMER, 1983

Deborah S. Mounts
Principal
Woodland, California
Steven C. Street
Developmental Specialist

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Deborah S. Mounts
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
✓ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

RC014463

We know that students who come from a different cultural heritage have a difficult time in maintaining their own personal identities as well as learning a whole new set of cultural values and processes.

We also know that all people learn differently and that it is inherent on our part as professional educators to meet the unique needs of all students.

Both of these issues were directly and professionally addressed by the high caliber of teaching and personal commitment of our staff to migrant students.

The staff that made this summer school program a positive experience for the students and a growth experience for themselves include the following. Without their presence, this unique opportunity would have been lost. Thank you all!

Rita M. Abeyta
Juana Vita Begines
Helena Camilo
Holga Davis
Marcia L. De la Santa
Amy Gillmore
Michele Leonard
Lucille Maes
Carole Palmroth
Olga G. Smith
Jose A. Rodriguez
Janis Stratton
Chynthis M. Thompson.

A special thanks to Tom Lugo, Director and Carlos Meza, Area Coordinator for accepting and supporting the proposal of this summer school Project.

PROJECT ABSTRACT

The primary purpose of the summer school project was to determine if in a period of 34 school days, significant change in teacher and student behaviors would occur as a result of combining right brain learning activities with the traditional left brain learning activities usually provided for students.

The successful completion of the project goal would occur as a result of the following objectives:

1. Increase academic growth in the cognitive areas including reading, math, science, social studies and health through the utilization of the Glendora Unified School District Title IV-C Curriculum; Teaching Both Sides of the Brain.

2. Initiate and utilize integrated teaching processes to enhance the academic and social skills goals in both the elementary and secondary classes.

3. Initiate and utilize, in the classroom, parent participation to support the cognitive, social and integrated learning of their children.

4. Increase affective and social skills through participation in Yo Puedo, Magic Circle and Cooperative Learning Activities.

Migrant students have a dramatically high school dropout rate (40%) as compared to non-hispanic white students (15%)[1]. There are many reasons for this failure of schools to take into account the different learning styles of students. It may be that Hispanic children learn differently from non-Hispanic students due, in part, to a difference in cultural values which influences cognitive processes[2]. It was felt that this issue was one which could be appropriately addressed through the Right/Left Brain Concept of learning. The project wanted to support what good teachers have always known: the brain has more than one way of knowing and by giving credibility and support to richer kinds of teaching we can maximize each student's opportunity for a successful school experience.

Student success is often dependent on the willingness of teachers to be self-evaluative and realize professional growth. Therefore, the process of teacher change was given primary emphasis. Through the processes of inservice training prior to and during the summer school project, plus classroom

observations and demonstrations, teachers were given the freedom to utilize the Title IV-C Teaching Both Sides Of The Brain developed by the Glendora School District as creatively as they wished. The encouragement of this freedom was a statement to the teachers that professional growth and expertise were valued and the creation and ownership of their own individual teaching methods to exemplify the Right/Left concept was expected. In addition, by encouraging this ownership on the teachers' part, many of them were able to transfer the joy of creativity and flexibility into their interactions with students. Through teacher modeling, students were better able to become comfortable with many of the right brain learning activities introduced into their lessons.

Results of the project were determined through student assessment, student and teacher interviews and general classroom observations conducted by the principal and developmental specialist. Specific results are outlined on pages 7, 8 and 9 of the report.

These results lead to the general conclusion that through the utilization of integrated teaching processes, students not only made academic progress during the seven week period, but, more significantly, exhibited a positve attitudinal change toward education.

HAIKU

En la mañana
despeirto con el sol
en mi ventana.
María Ramirez

Storms are very strong
with the sun shining over
birds flying away.
Efrén Rabago

Birds and bees fly high
now the bird follows him home
they are good friends.
Ricardo Ordorico

I saw them at sea
and saw them in the winter
they were water drops.
Angie Rivera

PROGRAM OVERVIEW

THEORY

Hispanic migrant students face a myriad of obstacles in their quest for a successful educational experience in schools in the United States. Some of these barriers include poor health, poverty, mobility, language, learning styles and discrimination. Anyone of these barriers would be difficult to overcome but when considered together, there is little wonder for the dramatically high failure rate of Hispanic students. The dropout rate for those students who make it to high school is 40%, as compared to 15% for the non-Hispanic white students.

While the picture is currently bleak, there does appear to be some hope in the current research focusing on the concept of right and left brain learning and its special applicability to Hispanic students - both regular and those in special programs.

In an interview in the August 1982 issue of the NEW AGE Magazine, Marilyn Ferguson stated that "...although it has not exactly turned the world of education upside down overnight, the powerful metaphor of right and left brain learning is having some impact. The schools as they now exist are brain antagonistic; which means that some of the most gifted people in our society, the right brained people with a holistic perceptual style, are being labeled "learning disabled" because they don't learn to read in quite the same way as others. The discovery that, in fact, the brain has more than one way of knowing, which good teachers always knew, gives credibility to a richer kind of teaching than we had in the past - a whole-brain approach."

In addition, according to Ramirez and Castaneda in Cultural Democracy, Bicognitive Development and Education[3], there exists a direct relationship between culture and one's cognitive style, with the cognitive style of a Mexican-American child coming from a traditional home setting characterized by greater achievement on verbal tasks of intelligence tests, greater ease in learning materials which have human, social content, and which are characterized by fantasy and humor, greater performance when authority figures express confidence in their ability and preference for working in cooperation with peers. This cognitive style is that of a field sensitive person, a style which seems to be associated with the specialization of the right cerebral hemisphere.

The values of the school environment and dominant culture in which Mexican-American students find themselves include the belief that students should be encouraged to be competitive, should be allowed to do things on their own so that they can learn from their mistakes and should learn to rely on their own opinions rather than those of others.

Luis Laosa believes that the main reason for the failure of Mexican-Americans to succeed in school is the incompatibility of cultures in which the children are raised and in which they go to school. Laosa states that "Teachers need to develop pedagogical approaches to curriculum and teaching strategies to capitalize on the learning styles of Hispanic children." There is a need to assess the child's learning style and to identify teaching strategies that at first best matches the child's approach to learning and later encourages integration of learning approaches.

The method garners additional support from Pat Sheffer in "Targeting Learning Disabilities"[4], in which she hypothesizes, as a result of her work with learning disabled children, that it is in the integration of left and right thinking and the integration of learning modalities that this process in children breaks down. She believes that "if we have an idea where the child is unable to make needed connections, we can simplify the process required or teach from a different point of view to facilitate a strength.

It has become apparent that many migrant students may be facing MISplacement into special education classes and/or failing in regular classes due to their learning orientation rather than due to any learning disability.

This project proposes a preventative approach to teaching migrant students, one that utilizes curriculum based on the right/left brain hemispherisity concept.

SCHOOL PROFILE

The Migrant Child Education Summer Compensatory Education Program served 200 migrant studetns in kindergarten through twelfth grades residing in the Sacramento City Unified School District cachement area. These are students who have experienced interruption in their schooling due to the families' migratory and who are, as a result, often one to three years behind in their grade level equivalency. Summer attendance was not consistent due both to movement to seek summer employment and the need for older children to provide child care for younger siblings.

The staff consisted of eight teachers, seven aides, one counselor intern, one developmental specialist and the principal. The students were grouped as follows: (1) Group I - kinder-

garten through second graders were in self contained classrooms with teachers sharing materials and occassionally combining classes for activities. (2) Group II - third through sixth grade students were shared equally by three teachers on a departmentalized basis, including math, reading/language, social studies/art-music, and (3) Group III - seventh-eighth and ninth-twelfth graders grouped with each group having one teacher.

MATERIALS

Project materials include a manual, two assessment instruments, and four sets of lesson plans and materials. Although primarily designed for pre-school through fourth grade, these materials were utilized by all kindergarten through eighth grade teachers. The following are discriptions of these materials:

The Project Manual includes relevant background information about brain hemisphere theory and research, a guide to assessment procedures, a guide to the use of lessons and materials, and a section on general project stratagies.

The Test of Left Hemisphere Ability is a 25-item test in which the student listens to a statement and then tries to repeat it accurately.

The Test of Right Hemisphere Ability is a 19-item test which requires the student to identify by naming partially completed pictures (test of gestalt or visual closure).

Norms for the two tests have been established so that raw scores can be converted to age equivalents. Results of these two tests are used to assess students' preferred styles of learning.

The set of Reading Lessons consists of a variety of lessons which are specially designed to improve basic reading skills by using right brain hemisphere processes, left brain hemisphere processes, and a section of lessons designed to facilitate brain hemisphere integration.

The set of Math Lessons consists of a variety of lessons which are specially designed to improve basic math skills by using right brain hemisphere processes, left brain hemisphere processes, and a process of brain hemisphere integration.

The set of Brain Hemisphere Activities consists of a section of lessons designed to improve right brain hemisphere processes, and a section of lessons designed to facilitate brain hemisphere integration.

The set of Social Studies/Science Lessons consists of a variety of lessons which are specially designed to reinforce knowledge related to social studies and science through the use of right brain processes, and a process of brain hemisphere integration.

CHANGE PROCESS

Inservice Trainings

Prior to the beginning of the summer school project, the teachers participated in three inservice activities that assisted in building a theoretical foundation for the summer school project as well as providing some practical teaching strategies to support the theory. These inservices focused on:

a. matching teaching styles to student learning styles,

b. planning learning activities designed to involve a high degree of brain hemisphere integration.

c. infusing natural language acquisition principles with integrated lesson plans.

Additionally, all the teachers particpated in weekly staff meetings that also provided more theory, experiential learning activities, updates of what had occured and what was planned for the near future with regard to the summer school project. Some sharing among staff of what worked and didn't work did occur.

CLASSROOM OBSERVATION?DEMONSTRATION

Informal classroom observations were conducted by the Developmental Specialist to:

1. observe how the teacher was utilizing right hemisphere techniques with the students,

2. observe how the right hemisphere techniques were being integrated with the traditional left hemisphere activities,

3. assist the classroom teacher with feedback, new ideas, suggestions as to how the lesson could be taught from an integrated perspective and as a general support in the overall process of teacher change in the classroom

4. learn how to demonstrate a particular integrated lesson with a particular group of students and to then, in fact, demonstrate for the respective teacher

the "how to" of teaching an integrated lesson,

5. collect observation data for assessment purposes and to maintain the focus of the project as it related to the overall goal and objectives.

CONSULTANT SERVICES

Dr. Art Costa, California State University, Sacramento, Professor of Education consulted with the staff and project in order to guide the process of change. This service was delivered in the form of inservice training, facilitating staff meetings, classroom observations and teacher inservices.

Additionally, Mary Beall, Consultant for the Title IV-C "Teaching Both Sides of the Brain" curriculum developed in the Glendora Unified School District, provided the staff with a day of services in reviewing the curriculum. Mrs. Beall also assisted the Project Principal and the Developmental Specialist with numerous ideas and suggestions regarding curriculum ideas and modifications.

RESULTS

Assessment

All students (K-8) were pre and post tested utilizing the curriclum's Test of the Right Hemisphere Ability. In addition, K, first and second grade students were given the pre-test of the Test of Left Hemisphere Ability. Sixty-three students were randomly selected to be followed throughout the thirty-four days of school.

Data

The data of results for the project are reflected in:

a. Pre-post right hemisphere scores of the 63 students in grades K-8,

b. Student/teacher anecdotal remarks

c. Teacher growth as measured by classroom observations and self-evaluation.

Student Pre test Data

Students were tested individually and in groups according to specific class needs. Those students in Group I (K, 1 and 2) were tested individually by their teacher who felt that this method best accomodated for the students' age and mono-

linguality (Spanish). Students in Group 2 and the 7th - 8th graders in group III were given the Test of Right Hemisphere Ability in small groups. Each student was given a response booklet and the testing process was monitored by a teacher. This method allowed for maximum use of time. It was felt that since these tests were normed only for students up to a chronological age of 10.6 years, it was inappropriate to test high school students.

The charts in the addendum show a comparison of the students' chronological age, gender and grade level with their pre-post scores of the age equivalency and raw scores of the Test of Right Hemisphere Ability. A general description will be provided at this point regarding the actual test results, by group.

Group I (K, 1 and 2)

K (n=10) Five students improved. Two students maintained their score while three students scored less.

1 (n=9) Eight students made positive gains by scoring higher on the post test. One student scored less on the post test than on the pretest.

2 (n=9) Five students improved. Four students maintained their score.

Group II was composed of students attending a departmentalized, three teacher program for third, fourth, fifth and sixth grades.

Group II

3-4 Of the eight students tested, six improved, one maintained the same score and one scored 16 out of 19 possible, down one from the pretest.

4-5 Six out of 10 students improved, three maintained their original scores and one student missed less than the previous pretest results

5-6 Due to student absences, only eight students were pre and post tested in this group; Five students improved (one girl scored the first 19 out of 19 possible), one student maintained the same score and two students earned lower scores.

Regarding the totals of Group II, 17 students improved their previous scores, five students maintained their original scores and four students scored less than their pretest totals. Althouth the norms of the curriculum were measured up through the fourth grades (10.6 C.A.), these norms were utilized up through the sixth grade for this project. Since the focus of the project was practical and not statistical in nature, the

norms provided the project a guidepost as to how bilingual students in a 34 day summer school faired as a result of utilizing integrated teaching principles in the classroom.

The last group, Group III, consisted of nine seventh and eighth grade students. All students increased their test scores, two by completing five more visual closures and one by completing four more visual closures. Again the test norms were too low to actually measure shifts in age equivalents, so comparisons of pre and post test raw scores were utilized.

STUDENT ANECDOTAL REMARKS

Since students were involved in a variety of new and different activities it was important to directly hear from them the impact this experience had on them. A collection of anecdotes was spontaneously elicited from the students by the teachers. Teachers simply asked individual students or small groups of students questions like:

1. When we did the activity (e.g., Squiggle Line drawing, see addendum page 19), what did you like about it? What did you learn from it?

2. Tell me what you like about summer school.

3. Would you come back next year? Why? Why not?

Here are some of their responses:

"The field trips to Old Sacramento, Sutter's Fort, Mckinley Library and swimming."

"Painting, cooking, drawing pictures."

"Brain games - they are fun. I really liked it when I was an ant and slid down the ice cream sundae. It tasted good."

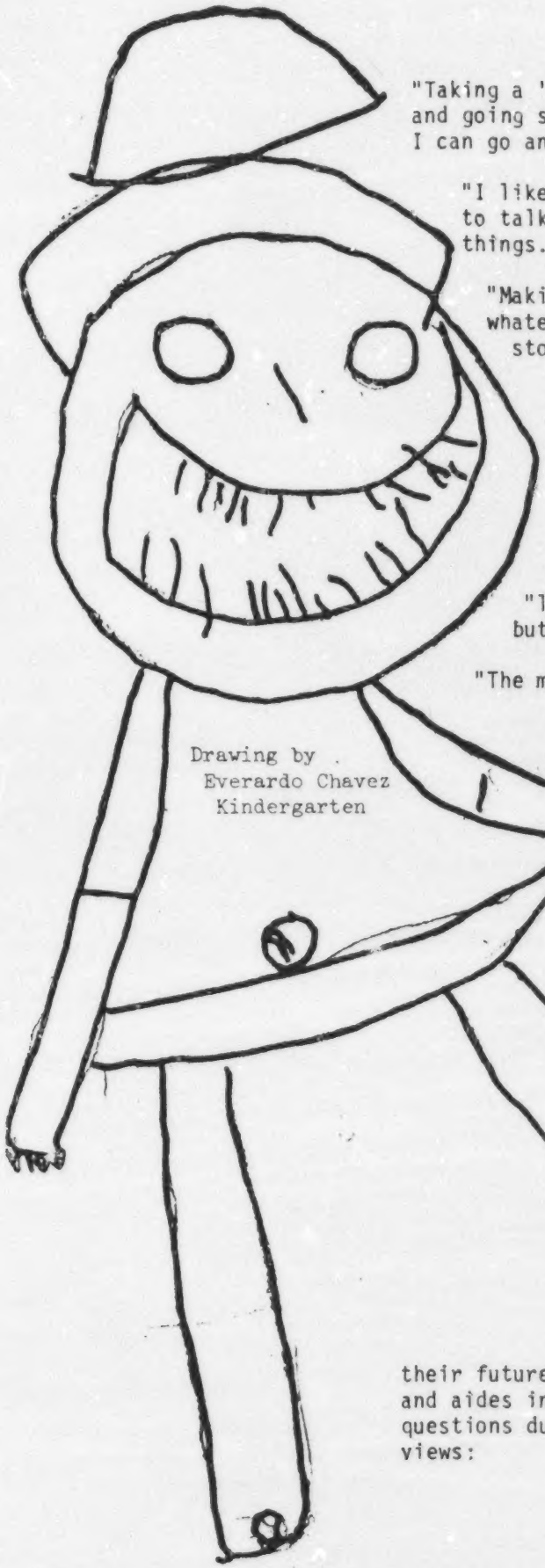
"math, writing, addition, times tables"

"The shows on the stage."

"Camping."

"Taking trips in our mind (visual imagery). I liked swimming in the secret place by myself. There was music and it was dark and quiet."

"Cutting out the cat picture, pretending I was that cat and writing a story about being the cat."



Drawing by
Everardo Chavez
Kindergarten

"Taking a 'brain game' trip to the beach and going swimming. I like it because I can go anytime I want."

"I liked the Magic Circle - it helped to talk to people and think about things."

"Making the animals - 'you can do whatever you want' - then write a story and read it to the class."

"learned to speak more English"

"liked drawing the crazy pictures"

"liked the 'lines to make birds'" (squiggle line drawing from the curriculum)

"learned how to write using peanut butter"

"The maps we did were fun."

"Making the masks."

"the play"

"popping and making up our own dance for the play"

STAFF ANECDOTAL REMARKS

It was additionally important for teachers to express for themselves their intuitive feelings about how they viewed their personal growth, the impact of the project and its implication on their future teaching styles. The teachers and aides individually responded to these questions during the post-project interviews:

1. How helpful were the staff trainings that you attended prior to and during the actual project? (e.g., Dr. Art Costa's learning styles, Natural Language Acquisition workshop; Mary Beall's review of the curriculum and staff meeting training by Debbie and Steve)?

2. What growth have you personally experienced and how has it affected your teaching in this project?

3. As a result of the project, what impact will this have on your future teaching experiences?

4. In your opinion, how successful was the project and for what reasons?

Listed below is a potpourri of staff responses to these questions:

How Helpful was the Staff Training Program?

"Mary Beall's curriculum presentation. It gave me the opportunity to see and experience at least some of the activities we would be doing with the students."

"Art Costa's learning styles presentation helped me see how differently students learn. I need to be aware of my teaching style and adapt my teaching to the students' learning."

"Debbie's 'right brain' drawing activity during one of our first staff meetings. I experienced the differences in right and left brain perceptions. This helped me see the value of using the curriculum."

"Steve and Debbie's presentation in Woodland on integrated learning. It provided a conceptual basis for working with the curriculum with my students."

"The upside down picture drawing and the "grid" map activity were helpful."

"All of the staff training was good - my time was well spent and not wasted."

"Magic Circle and Yo Puedo inservice helped me understand the process of "how to" do it with my students. This activity helped me discuss situations in the classroom with my students."

"Demonstrations by Steve in the classroom of "how to" do integrated lessons was very helpful."

Personal Growth and Impact on Teaching the Project

"I've been doing integrated lessons all along . . . but I didn't know it. Still more to learn."

"I'm doing the activities with the students not simply handing out dittoes. The activities are fun."

"I have a new freedom to do new things, knowing that it's OK. I felt a 'sense of community and support' from the entire staff to try new things . . . and I did."

"I lecture less now and allow the students to do more. The kinesthetics, experiential approach to teaching is much more effective. I am more accepting of the student's saturation point (i.e., when they are tired) and move on to another activity rather than continue."

"I am more aware now that some students learn things one way, where others learn another. I can be as creative as I want to be."

"Less lecture and more use of small groups has been a significant growth for me. I saw that the students enjoyed doing more than listening and we used fewer dittoes."

"In my planning of lessons, I'm aware of the need for them to be integrated and therefore more creative. Experiential activities like tracing numbers and letters made of clay was fun and effective.

Future Teaching Experiences

"I will be more aware of students' learning styles in the future."

"I will use the curriculum next year in my program."

"I will be more conscientious of what I'm teaching AND what the students are learning. I will talk more with the students."

BEST COPY AVAILABLE

"I will address learning styles, 'not just the lessons.' I will try many different teaching methods instead of just one."

"'Follow-up' via games and other integrated lesson activities is very important to 'teach the point.'"

The Success of the Program

"I needed more time to get my lessons together. I would like to work with Art Costa more."

"Very successful because I did alot of "hands-on" activities with the students and they worked. Use of yarn, clay and whole body activities supported students learning the numbers and letters."

"I saw it as successful for me and a few of the students. Some students commented that they had a basic understanding of left and right brain functions."

"I actually saw learning taking place. All the students were involved and they didn't get bored. It appeared to be a game but actual learning took place. 'It didn't seem like teaching.'"

"It was successful but it could have been more successful if we had more time. Curriculum needs to be updated through the 6th grade."

"The students were involved, they enjoyed coming to class because they felt success. The feeling of 'everybody is doing weird things but it's okay,' An air of excitement and good fun!"

As a final question, the staff was asked what they enjoyed most and least about the project.

Most

"People I worked with."

"To not only learn about integrated lessons, but to actually teach them."

"The students caught on to the activities fast."

"The students - their countenance."

"I enjoyed working with small groups of students."

"To actually try new things out and observe the results."

"That we could be as creative as we wanted to be. If other staff members hadn't been so creative and the principal hadn't supported us being creative in our teaching, I wouldn't have done all the integrated lessons I did do. I enjoyed watching the students shine, whereas in regular school they wouldn't have had this opportunity. It's important to me that the students feel good and succeed."

"Being able to be flexible - no set curriculum and nobody watching my every move - no continuums!"

Least

"I wanted to teach more than just the departmentalized math groups. Next year I'll decide to do this differently."

"Not having earlier access to the curriculum to review and prepare lessons."

"testing"

"Not enough time to prepare and the length of the school days."

"Some of the curriculum ideas were too hard for the kindergarten students."

"The fist week - unsure feeling about 'what is this stuff?'"

OBSERVATIONS

Each classroom was observed, formally and informally, by the principal and the developmental specialist. The following remarks pertain to the observed teacher behaviors as they relate to the Whole Brain Learning Project.

1. With ample coaching and support, teachers moved from "I see," to "I do," to "I learn."

2. Most teachers wanted concrete, hands-on ideas to guide them in implementing the concept of integrated lessons. However, for one, highly autonomous, creative teacher who already had the necessary skills, the project provided the conceptual framework for putting her skills into focus.

3. As a result of the staff attending four inservices prior to the start of school, most teachers began to conceptualize learning styles and the importance of matching learning styles.

4. Most successful integrated activities involved the student being physically involved with the learning process. For example, kindergarten students completed a vocabulary building lesson by drawing full scale images of their own bodies. First graders learned the alphabet letters and basic spelling concepts based on the shape of the letters and the name of the shape of the letter (tall, short and tail letters). Second graders were working on basic consonant sounds and learned these sounds via basic vocabulary flash cards. In association with these cards, each student learned a kinesthetic sign. By simply showing the sign, the students could recall the work very rapidly. Third and sixth graders were involved with a three teacher departmentalized concept of teaching. All three teachers utilized visual and guided imagery to assist students in relaxing in order to improve attending skills, kinesthetic activities such as acting out animal behaviors in preparation for writing an animal story or tumbling activities to become aware of their body image in space. Additionally activities such as building wooden boats, solar ovens, utilizing pictures from newspapers as story starters and cooking, all contributed to the implementation and daily usage of integrated lessons. At the seventh and eighth grade levels, poetry, mask making, history lessons on Indian Gods and their impact on the Mexican Culture, mind mapping, puppetry and drama all supported the whole brain learning and teaching concepts.

The high school students were involved in a drama production and two different mask making activities. It was noted that the older students moved more slowly at

BEST COPY AVAILABLE

the onset of these activities as compared to the younger, elementary aged students. Most of the academic time at the high school level was spent on the P.A.S.S. Program.

Since teacher growth was a major objective of the project, the folloiwng observations are highly significant in illustrating the phases of change. Teachers moved through three distinct phases regarding teaching integrated lessons. In the first phase comments such as, "I'm willing to learn, talk to me, show me and I'll try it." were prevalent. This period lasted for one to two weeks. The second phase saw not only more confidence but also more need for concrete ideas. Typical responses were, "I'm doing some of the lessons right out of the currcilum. Please demonstrate and discuss lessons with me." "Provide me with ideas." This phase still lacked ownership on the part of the teacher for the generation of ideas.

The Developmental Specialist was still viewed as the "expert" and the one who was mainly responsible for the "doing." Duration was primarily weeks three through four, but did go into the fifth week. Phase three saw a fully integrated teacher, one who had internalized the concepts of right/left brain and matching teaching styles to learning styles. From these teachers came comments such as, "I'm not only following the curriculum guides, but I'm also creating my own "whole brain" lessons. "I'm sharing my ideas with others. This makes sense! I'm seeing students' behavior change." This phase was reached by six of the eight teachers during the final two weeks of the project. Of the two that did not quite reach this final phase, it should be noted that with more time and individualized coaching another would certainly have achieved this level. The other teacher verbalized that the amount of flexibility in allowing students to move in different directiosn at different times (so totally necessary for integrated teaching) was beyond reach at the present time.

CONCLUSIONS

Migrant Child Education attempted, through the Whole Brain Learning Project, to diverge from the traditional curriculum to a novel curriculum with a diversity of teaching methods which encouraged and accepted both right and left hemisphere modes of thinking and learning. We felt that migrant students would especially benefit from such an approach.

By carefully selecting the eight teachers for the project, providing

BEST COPY AVAILABLE

them with a comprehensive staff development support system and giving them the opportunity to express their own individual creativity, a school atmosphere was created which fostered the achievement of the project's objective.

Student learning took place. Academic growth was evidenced through comparison of pre/post math, reading and language activities. While it would be likely that growth would take place during any seven week period focusing solely on academics, what is note worthy is that STUDENT ATTITUDE toward learning showed positive changes. For students who may be far behind their grade level, statements such as:

"I liked the math, writing, addition and times tables."

"Taking trips in our mind . . . like swimming in a secret place."

"Making the animals - you can do whatever you want with them - and I wrote a story and read it to the class."

are exciting evidence of attitudinal change. This changes comes from the creative manner in which material is taught.

When students were engaged in meaningful, experiential learning, it was observed that disruptive behavior lessened and attentive, time-on-task behavior increased.

While the successful student growth was encouraging, the most significant occurance in the summer school project was the change in teacher behavior. The dramatic growth of the teachers will influence many more than the 200 students in this project as they each return to their own districts with a whole, new conceptual framework of what EDUCATION CAN BE. This growth is best stated by the teachers themselves:

"I experienced the differences in right and left brain perceptions. This helped me see the value of using the curriculum."

"Inservice training provided a conceptual basis for working with curriculum with my students."

"I'm doing the activities with the students and not simply handing out dittoes. The activities are fun."

"I'm more aware now that some students learn things one way, where others learn another. I can be as creative as I want to be."

"I lecture less now and allow students to do more."

"I actually saw learning taking place!"

Attention was also focused on the affective development of the students. This is a process which can only be just begun during a seven week period. Students were held accountable for their own behavior and time was spent in allowing students to reflect on their actions, their feelings and the consequences of both. An integrated approach was utilized in this area also. Standard circle sessions and class meetings were augmented with basic centering activities such as visualization and music to induce relaxation. Since many of the students experience exciting, sometimes chaotic home lives, they are inexperienced in knowing how to relax and become calm. These exercises were very important to many of the students.

The project was successful in achieving the goals of increasing student success and fostering teacher growth.

The "squiggles" illustrated here reflect a variety of student responses toward an initial task of creativity.

Student behavior in attacking the task was interesting: comments such as, "Can I turn the paper?", "I don't see anything.", "Can I use different colors?", were asked by students who were either uncomfortable with the openness of the assignment or who may have been so conditioned to the usual school structure that they were startled by this "permissive" activity. They needed to check out boundaries.

The content of their drawings shows a minimum of imagination (e.g., #1, The Bird, paper right side up as well as a very active imagination (e.g., #4, The Sled, complex drawing, paper turned around).

By repeating this type of activity through-out the project students were encouraged to enhance their imaginative, holistic perception. Most students, once they accepted the freedom and autonomy given them, were eager to see new and different shapes.

This simple activity can actually be a powerful lesson for students. The concepts of creative problem solving and the need for flexibility are fostered. Students can be encouraged to relate these concepts to other aspects of their lives and by doing so, begin to achieve for themselves, the project goal of whole brain learning and application.

SQUIGGLE

Name: _____

Directions:
1. Look at the squiggle in the box below.
2. What does it make you think of?
   Write it down here:

   _____

3. Finish the drawing by adding lines and color.

4. On another piece of paper write about what you have drawn.

SQUIGGLE

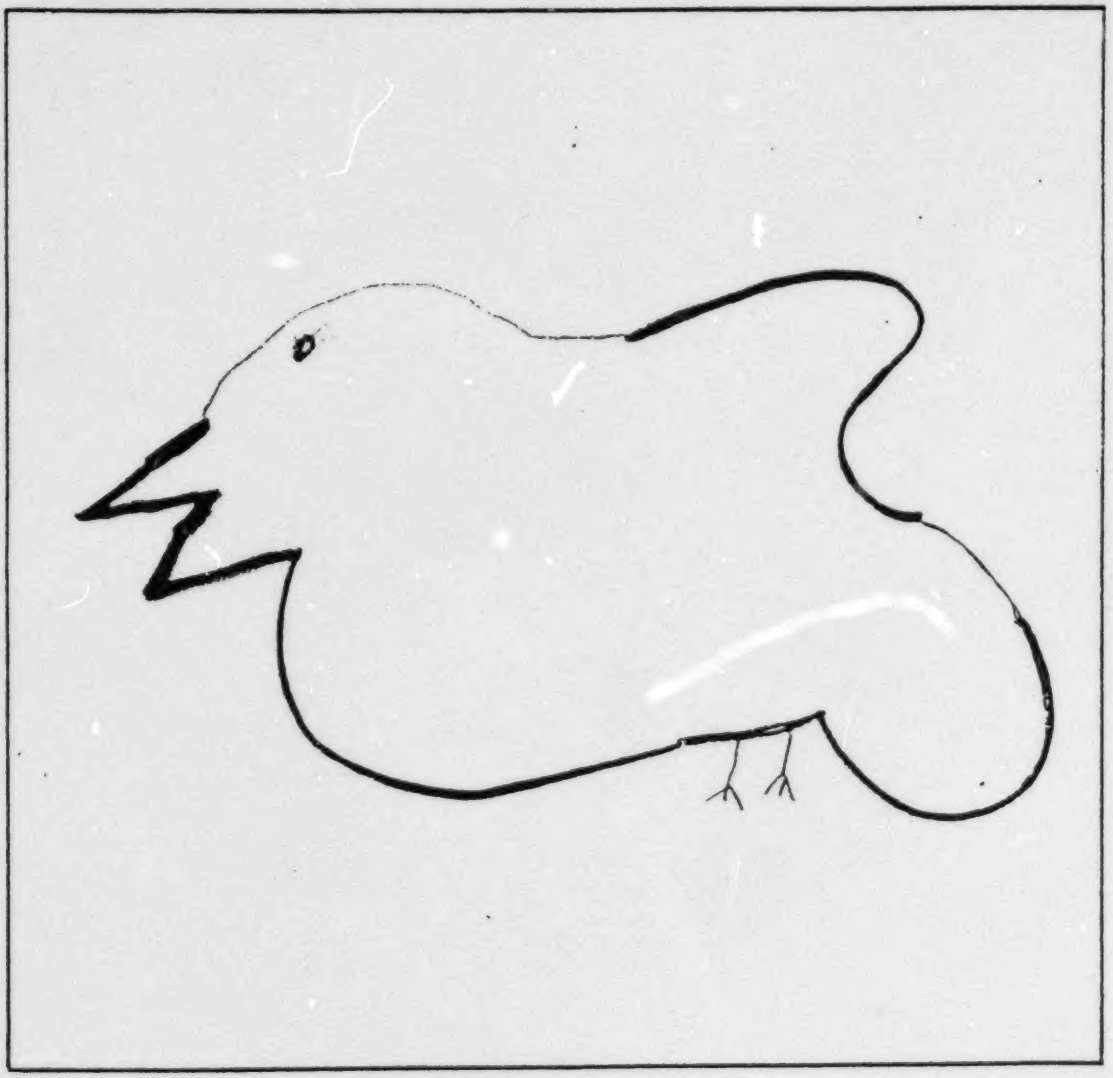
Name: _____

Directions: 1. Look at the squiggle in the box below.

2. What does it make you think of?
Write it down here:

a bird

3. Finish the drawing by adding lines and color.



4. On another piece of paper write about what you have drawn.

SQUIGGLE

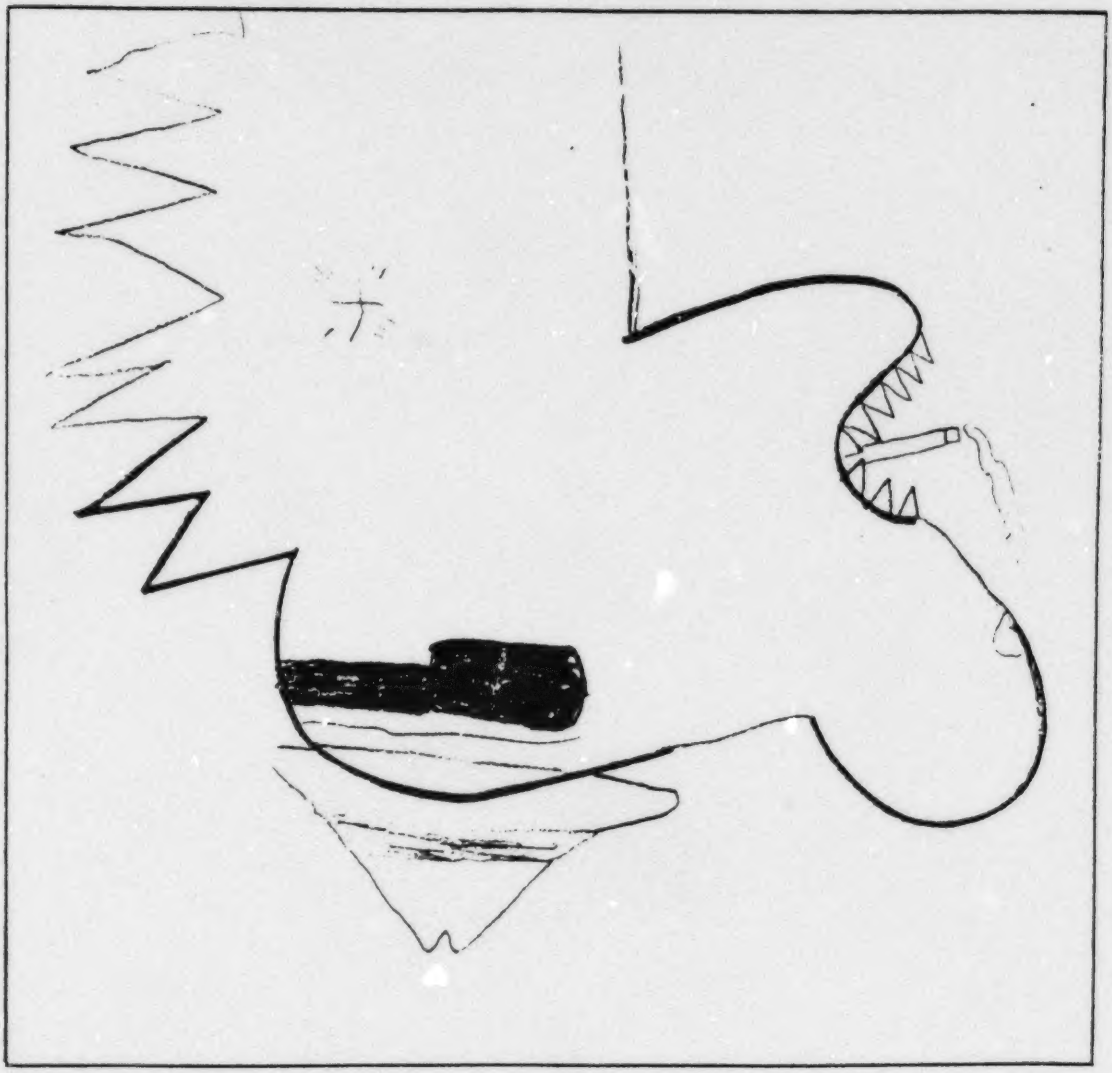
Name: _____

Directions: 1. Look at the squiggle in the box below.

2. What does it make you think of?
Write it down here:

_____

3. Finish the drawing by adding lines and color.



4. On another piece of paper write about what you have drawn.

SQUIGGLE

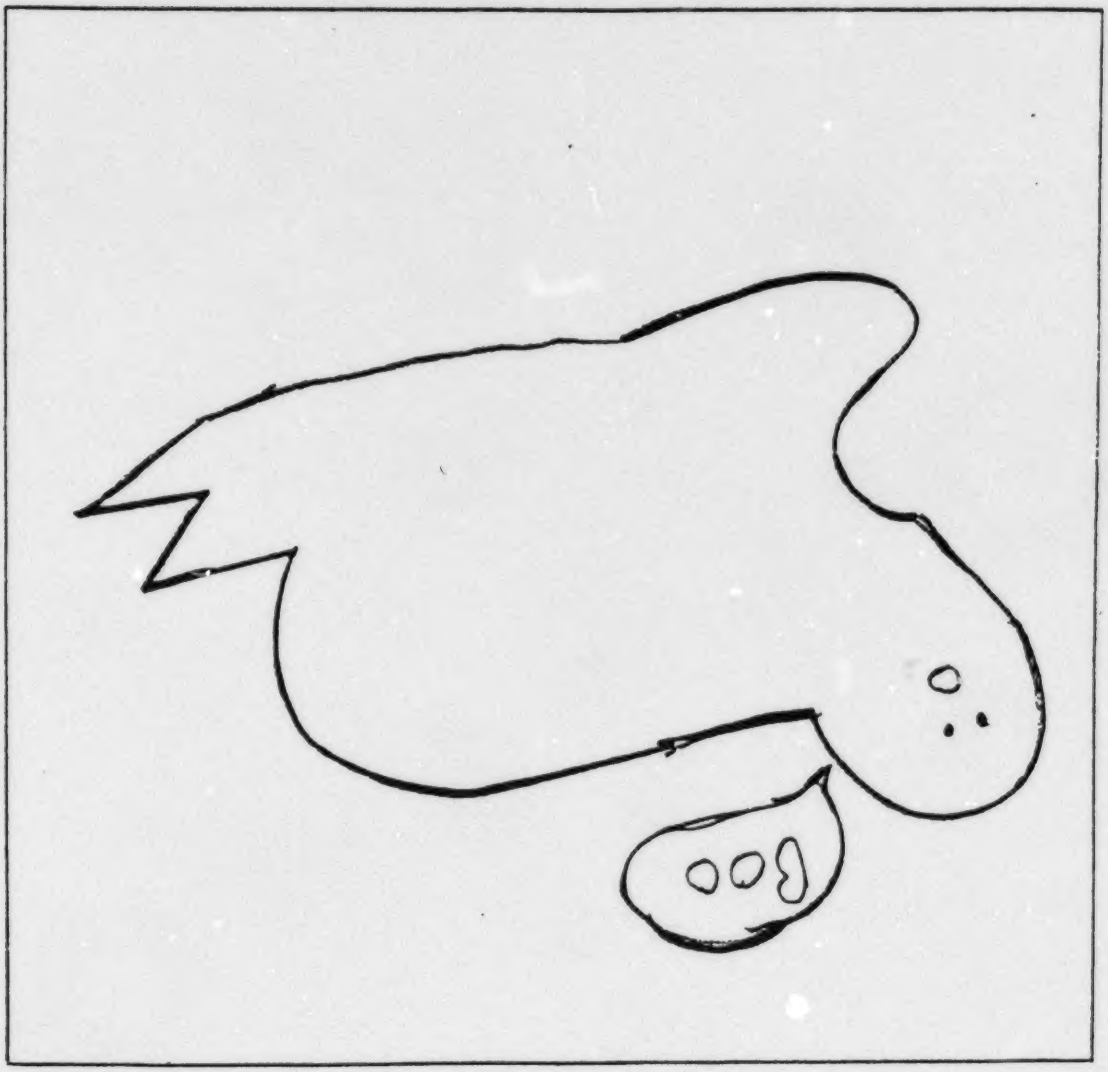
Name: _____

Directions: 1. Look at the squiggle in the box below.

2. What does it make you think of?
Write it down here:

a ghost

3. Finish the drawing by adding lines and color.



4. On another piece of paper write about what you have drawn.

SQUIGGLE

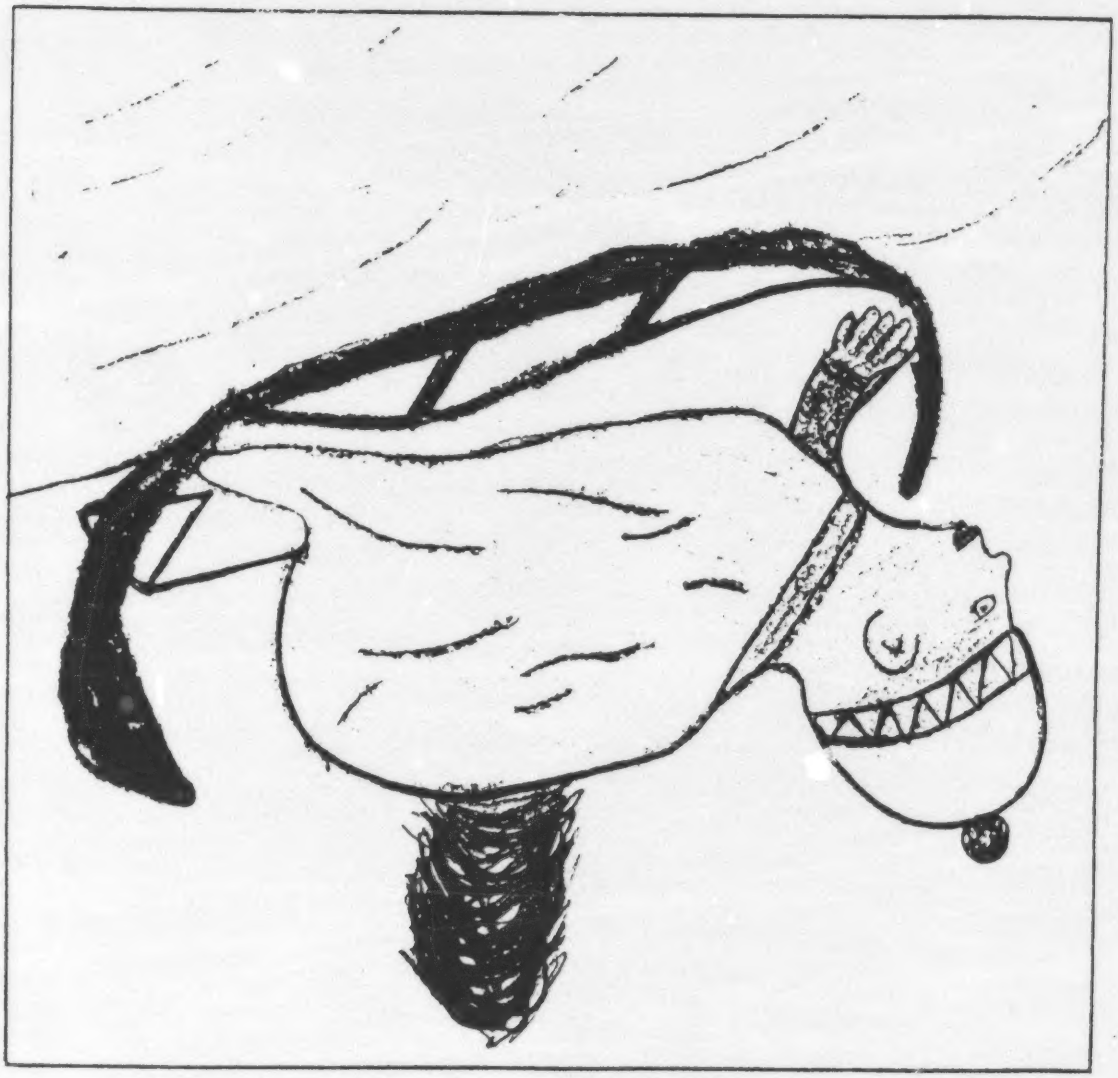
Name: _____

Directions: 1. Look at the squiggle in the box below.

2. What does it make you think of?
Write it down here:

_____

3. Finish the drawing by adding lines and color.



4. On another piece of paper write about what you have drawn.

MCE SUMMER SCHOOL "INTEGRATED LEARNING" PROJECT

GROUP: Kindergarten (n= 9)

MCE SUMMER SCHOOL "INTEGRATED LEARNING" PROJECT

GROUP: First Grade (n= 9)

Test Score	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post
Gender	F	F	M	F	M	F	M	M	M
C.A.	5.10	5.7	6.7	7.3	6.11	5.11	5.7	5.10	6.7

MCE SUMMER SCHOOL "INTEGRATED LEARNING" PROJECT

GROUP: Second Grade (n= 9)

Test Score	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post
Gender	M	F	M	F	M	M	M	F	M
C.A.	8.10	6.11	7.2	7.3	8.3	7.11	7.2	6.11	7.6

MCE SUMMER SCHOOL "INTEGRATED LEARNING" PROJECT

GROUP: 3rd-4th Combination (n= 9)

A. E. Score	Raw Score
	19
	18
	17
	16
	15
AN	14
10.6	13
9.6	12
7.6-8.6	11
7.0	10
6.6	9
5.6	8
5.3	7
5.0	6
4.9	5
4.6	4
	*

Test Score	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post
Gender	M	F	M	M	F	F	F	F	M
C.A.	9.10	7.10	8.11	8.10	9.10	8.7	10.0	10.2	8.10

MCE SUMMER SCHOOL "INTEGRATED LEARNING" PROJECT

GROUP: 4th-5th Combination (n= 9)

A. E. Score	Raw Score
	19
	18
	17
	16
	15
AN	14
10.6	13
9.6	12
7.6-8.6	11
7.0	10
6.6	9
5.6	8
5.3	7
5.0	6
4.9	5
4.6	4
	*

Test Score	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post
Gender	M	F	M	F	F	F	M	F	F
C.A.	9.8	9.6	10.4	10.6	10.10	10.3	9.10	10.5	10.0

MCE SUMMER SCHOOL "INTEGRATED LEARNING" PROJECT

GROUP: 5th-6th Combination (n= 8)

A. E. Score	Raw Score
	19
	18
	17
	16
	15
AN	14
10.6	13
9.6	12
7.6-8.6	11
7.0	10
6.6	9
5.6	8
5.3	7
5.0	6
4.9	5
4.6	4
	*

Test Score	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post
Gender	M	M	M	F	M	M	F	F	
C.A.	11.6	11.8	11.6	10.10	11.7	12.6	11.8	11.9	

MCE SUMMER SCHOOL "INTEGRATED LEARNING" PROJECT

GROUP: 7th-8th Combination (n= 9)

Test Score	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post
Gender	F	M	M	F	F	M	F	M	M
C.A.	12.4	12.5	14.4	12.4	10.7	14.5	14.3	13.1	12.10

MCE SUMMER SCHOOL "INTEGRATED LEARNING" PROJECT

GROUP: 7th - 8th Combination (n= 9)

A. E. Score	Raw Score
	19
	18
	17
	16
	15
AN	14
10.6	13
9.6	12
7.6-8.6	11
7.0	10
6.6	9
5.6	8
5.3	7
5.0	6
4.9	5
4.6	4
	*

Test Score	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post
Gender	F	M	M	F	F	M	F	M	M
C.A.	12.4	12.5	14.4	12.4	10.7	14.5	14.3	13.1	12.10

FOOTNOTES

1. Califonria Master Plan for Migrant Education, California State Department of Education

2. Ramirez III, Manuel and Castaneda, Alfredo. Cultural Democracy, Bicognitive Development and Education, Academic Press, 1974

3. Ferguson, Marilyn, "New Age," August 1982

4. Ramirez and Castaneda, op. cit.

5. Sheffer, Pat, Targeting Learning Disabilities

BIBLIOGRAPHY

- BOOKS

Albrecht, Karl. Brain Power

Blakeslee, Thomas R. The Right Brain

Buzan, Tony. Using Both Sides of Your Brain. E.P. Dutton, 1976

Casebear, Beverly. Using The Right/Left Brain - An Auditory Imagery Program

Claycomb, M. Brain Research and Learning. National Education Association, 1978

Edwards, Betty. Drawing on the Right Side of the Brain. J.P. Tarchers, Inc., 1979

Edwards, David. How To Be More Creative

Ferguson, Marilyn. The Aquarian Conspiracy

Naisbitt, John. Megatrends

Ostrander, Sheila and Schroeder, Lynn, Super Learning

Ramirez III, Manuel and Castaneda, Alfredo. Cultural Democracy, Bicognitive Development and Education, Academic Press, 1974

Raudsepp, Eugene, How Creative Are You?

Sagan, Carl. The Dragon of Eden. Random House, 1977

Samples, Box; Charles, Cheryl; and Barnhart, Dick. The Wholeschool Book. Addison-Wesley Publishing Co., 1977

Sheffer, Pat. Targeting Learning Disabilities, A Behavior-Test Diagnosis Manual, Whole Person Institute

- ARTICLES

Blau, Harold and Sinatra, Richard. "Word Learning: Using the Right Brain." Academic Therapy. September, 1981, Vol. 17, #1, pp. 69-75.

Brooks, Richard; Obrzut, John. "Brain Lateralization: Implications for Infant Stimulation and Development," Young Children, March 1981, pp. 9-16

Brandwein, P. and Ornstein, R. "The Duality of the Mind." Instructor. 1977, 86, pp.56-58

Dunn, Rita and Dunn, Kenneth. "Learning Styles, Teaching Styles: Should They ... Can They...Be Matched." Educational Leadership, January 1979

Fox, Patricia. "Reading as a Whole Brain Function." Reading Teacher, October, 1979, pp. 7-14

Frostig, Marianne and Maslow, Phyllis. "Neuropsychological Contributions to Education." Journal of Learning Disabilities, Oct. 1979, Vol. 12, #8, pp 40-53

Hunter, Madeline. "Right-Brained Kids in Left-Brained Schools." Today's Education, November-December 1976, pp. 45-48

Levy, Jerre. "Children Think With Whole Brains," Educational Leadership

Louv, Richard. "Which Side of Your Brain Are You On?"

Prescriptions for Reading, "Two Brains Are Better Than One," Crost NEI Publications

Rubenzer, Ronald L. Education the Other Half: Implications of Left/Right Brain Research, ERIC Clearinghouse, 1982

Samples, Bob. "Mind Cycles and Learning." Phi Delta Kappa. May 1977, Vol. 59, pp. 688-92

Samples, Bob. "Neurophysiology and a New Look at Curriculum." Thrust, January 1976, Vol. 5, #3, pp. 8-10

Telzrow, Cathy "The Impact of Brain Development in Curriculum." The Educational Forum, May 1981, pp. 477-483

Roger M. Williams, "Why Children Should Draw."

Bob James, Earl Klugh, One on One

- CURRICULUM

Santa Clara U.S.D., Project Balance - ESEA Title IV-C

Glendora U.S.D., Teaching Both Sides of the Brain, Vols. I, II, III